Drinking Water Surveillance Program

MITCHELL'S BAY WATER TREATMENT PLANT

Annual Report 1989

Ontario
Environment
Environnement

91-05970/

ISSN 0840-531X

MITCHELL'S BAY
WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1989

Cette publication technique n'est disponible qu'en anglais.

January 1991

Copyright: Queen's Printer for Ontario, 1991
This publication may be reproduced for non-commercial purposes
with appropriate attribution.

EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

MITCHELL'S BAY WATER TREATMENT PLANT
1989 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The Mitchell's Bay Water Treatment Plant is a package plant using conventional treatment to treat water from Lake St. Clair. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Powdered Activated Carbon was added for taste and odour control. This plant has a design capacity of 1.1 x 1000 m^3/day and serves a population of 350.

Raw and treated water samples were taken on a monthly basis and were analyzed for the presence of approximately 180 parameters. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polyaromatic Hydrocarbons, Specific Pesticides and Volatiles).

A summary of results is shown in Table A.

The ODWO of 1 FTU was exceeded in the July treated water sample. The District Officer was notified.

All other Inorganic and Physical parameters were below any applicable health related guidelines.

Samples were analyzed monthly for the presence of approximately 110 Organics. Levels did not exceed health related guidelines.

During 1989, the DWSP sampling results indicated that the Mitchell's Bay Water Treatment Plant produced good quality water at the plant.

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP

SUMMARY TABLE BY SCAN

SCAN	RAW TESTS	RAW POSITIVE	RAW %POSITIVE	TREATED TESTS	TREATED POSITIVE	TREATED %POSITIVE
BACTERIOLOGICAL	36	22	61	36	3	8
CHEMISTRY (FLD)	30	30	100	71	70	98
CHEMISTRY (LAB)	250	223	89	243	171	70
METALS	288	181	62	288	163	56
CHLOROAROMATICS	168	0	0	154	0	0
CHLOROPHENOLS	6	0	0	6	0	0
PAH	191	0	0	192	0	0
PESTICIDES & PCB	408	2	0	387	2	0
PHENOLICS	12	10	83	11	5	45
SPECIFIC PESTICIDES	59	0	0	58	0	0
VOLATILES	348	0	0	348	49	14
TOTAL	1796	468		1794	463	

THE GDWQ FOR TURBIDITY (1 FTU) WAS EXCEEDED IN ONE TREATED WATER, NO OTHER HEALTH-RELATED GUIDELINE WAS EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

MITCHELL'S BAY WATER TREATMENT PLANT
1989 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The DWSP was initiated at the Mitchell's Bay Water Treatment Plant in the summer of 1985 as part of a study on the St. Clair/Detroit River area. Annual reports were published in 1986 (ISBN 0-7729-2563-1), 1987 and 1988 (ISSN 0840-513X).

This report contains information and results for 1989.

In order to accommodate the increased number of plants on the DWSP and to facilitate the timely completion of the 1989 annual reports, plants with two or more years of published data will receive an abbreviated annual report. This report maintains the same general format as in previous years but does not include a comprehensive discussion of the results. For more detail on the parameters analyzed and discussion of results, consult the 1987 and 1988 reports.

PLANT DESCRIPTION

The Mitchell's Bay Water Treatment Plant is a conventional treatment package plant which treats water from Lake St. Clair. The treatment process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Powdered Activated Carbon (PAC) was used to control taste and odour problems.
The treatment plant has a design capacity of 1.1 x 1000 m^3/day and sample day flows ranging from 0.042 x 1000 m^3/day to 0.1 x 1000 m^3/day. The plant serves a population of 350 people.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

SAMPLING AND ANALYSIS

Plant operating personnel perform analyses on parameters for process control (Table 1).

Water at the Mitchell's Bay Water Treatment plant was sampled for the presence of approximately 180 parameters monthly in 1989. The Specific Pesticides and Chlorophenols scans were sampled in June and November only. Polyaromatic Hydrocarbons and Phenolics are only analyzed in the raw and treated water at the plant.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

MITCHELLS BAY WATER TREATMENT PLANT

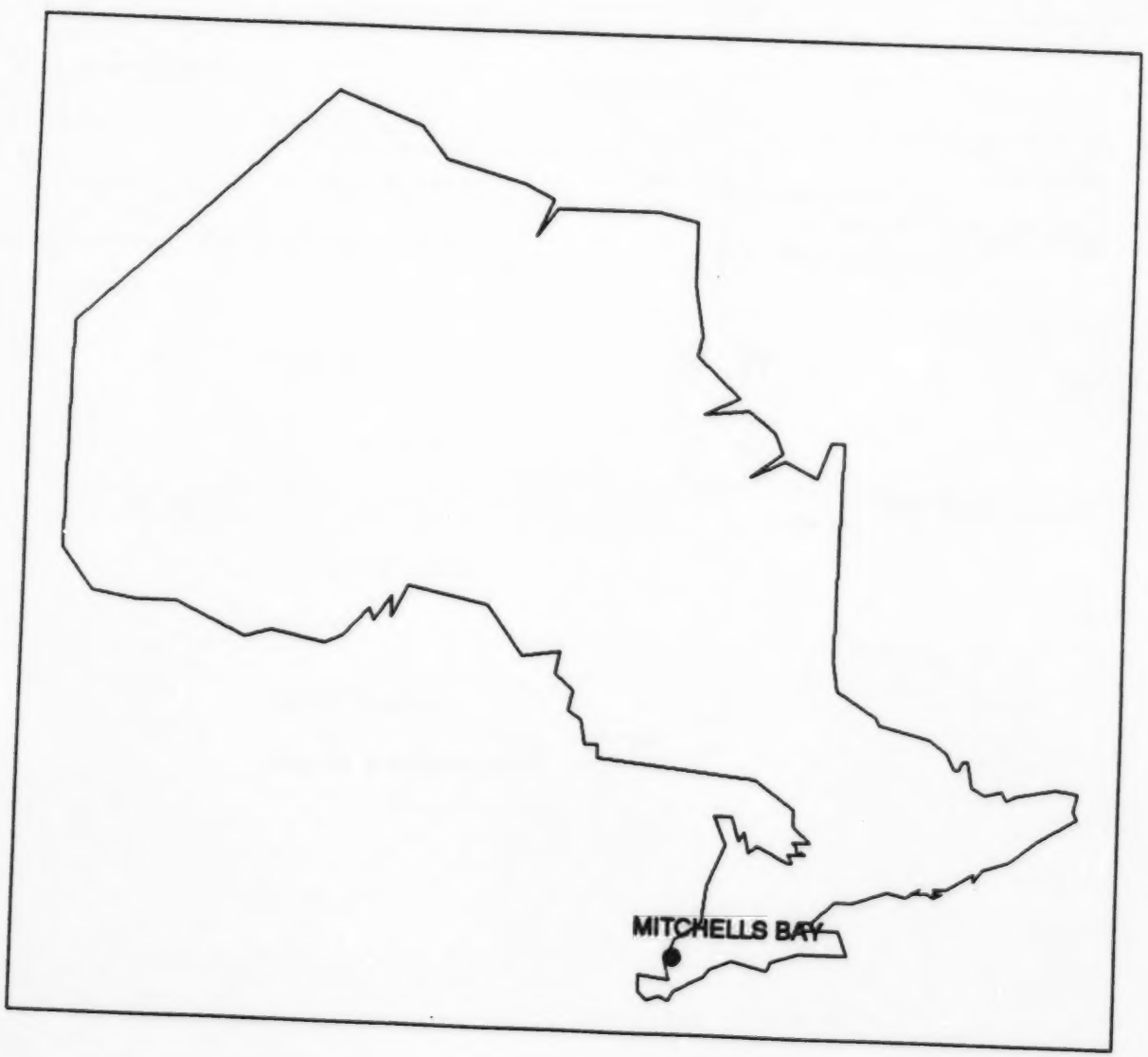

FIGURE 2

MITCHELL'S BAY WATER TREATMENT PLANT

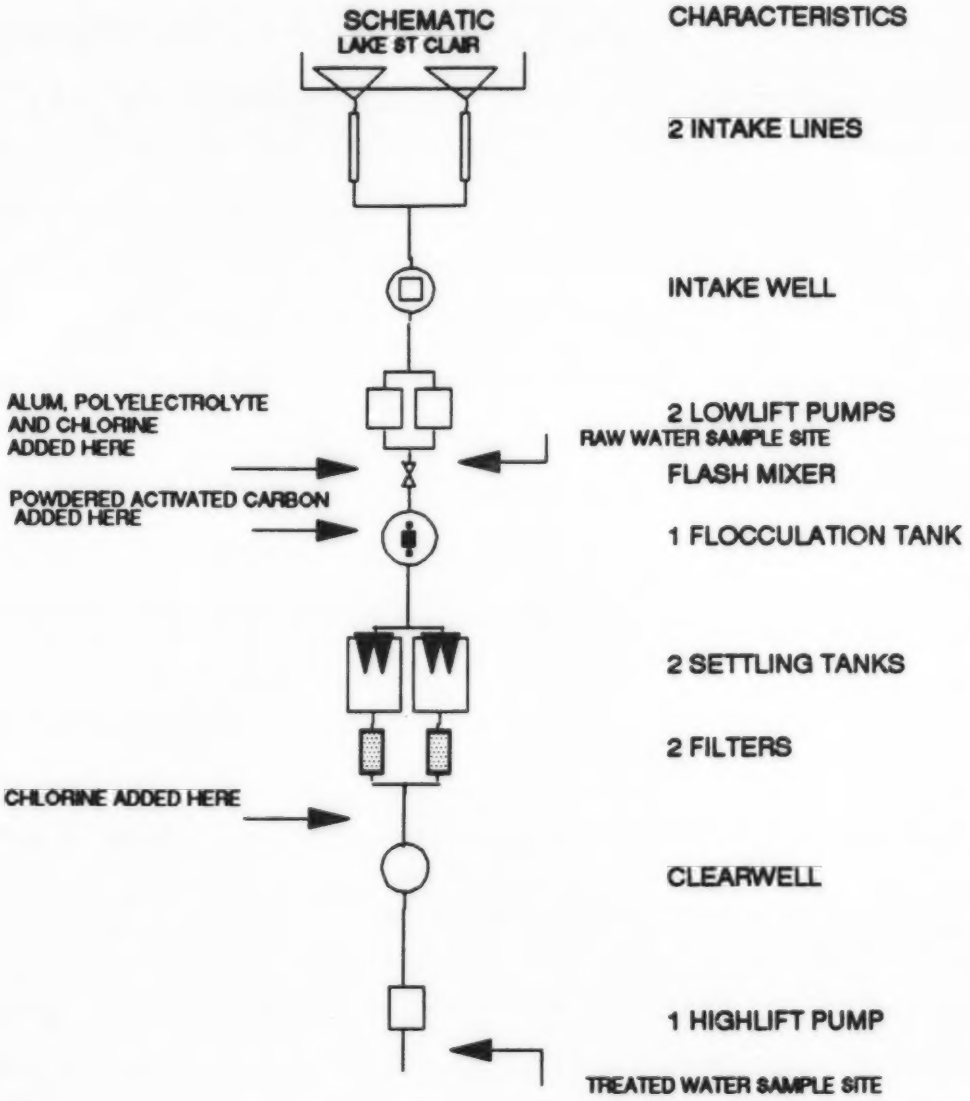

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

IN-PLANT MONITORING MITCHELL'S BAY WTP 1989

PARAMETER	LOCATION	FREQUENCY
Chlorine Residual	Treated water	continuous
Turbidity	Raw water Treated water	every 4 hrs continuous
Temperature	Raw water	daily

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

MITCHELL'S BAY WATER TREATMENT PLANT

LOCATION:	MITCHELL'S BAY MITCHELL'S BAY, ONTARIO N8Y 1G4 (519-351-3838)
SOURCE:	RAW WATER SOURCE - LAKE ST. CLAIR
DESIGN CAPACITY:	1.1 (1000 M^3/DAY)
OPERATION:	MINISTRY OF ENVIRONMENT
PLANT SUPERINTENDENT:	R. HEMBER
MINISTRY REGION:	SOUTHWESTERN
DISTRICT OFFICER:	O. WIGLE

MUNICIPALITY SERVED	POPULATION
MITCHELL'S BAY	350

As of August 1989, the Triazine pesticides were dropped from the distribution sample. Laboratory analysis was conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

RESULTS

Field Chemistry measurements were recorded on the day of sampling and were entered on the DWSP database as submitted by plant personnel.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analyzed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least

one occasion.

Table 6 lists all parameters analyzed on the DWSP.

Associated guidelines and detection limits are also supplied on Table 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters. These are currently under review. When an ODWO is not available, guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS), recently published (ISBN 0-7729-4461-X) by the MOE, catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Many of the compounds detected are naturally occurring or are treatment by-products.

IN THIS REPORT, DISCUSSION IS LIMITED TO THE TREATED AND DISTRIBUTED WATER AND ADDRESSES ONLY THOSE PARAMETERS

WITH CONCENTRATIONS ABOVE GUIDELINE VALUES AND ORGANIC PARAMETERS WITH POSITIVE RESULTS.

Results indicate that the ODWO for Turbidity was exceeded in one sample. No other health related guidelines were exceeded for inorganic or organic parameters.

Bacteriology

Standard Plate Count

The ODWO for standard plate count of 500 counts/mL was exceeded once in the September treated sample.

Inorganic and Physical Parameters

Turbidity

The ODWO of 1.0 Formazin Turbidity Unit (FTU) was exceeded in July. The laboratory turbidity value of 1.97 FTU was confirmed by the field turbidity result and the District Officer was notified.

PH

The pH value of 5.37 in the treated water in July was outside the normal range as specified in the ODWO of 6.5 - 8.5 pH units. The field pH test confirmed this result.

Alkalinity

The alkalinity of 2.2 mg/L reported in the treated water sample for July was lower than the aesthetic ODWO recommended range of 30 - 500 mg/L.

Hardness

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters, provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption.

The European Economic Community (EEC) aesthetic guideline level for Conductivity of 400 UMHO/cm was also exceeded and is a result of the high hardness levels.

Aluminum

The plant operational guideline of 100 µg/L as Al in water leaving the plant was exceeded twice in the treated water.

The July samples were directly influenced by the malfunction of the Alum chemical feed pump. A coagulant dose greater than that needed for optimum treatment, upsets the balance of the physical-chemical reaction, lowers the efficiency of the treatment process and adversely affects the quality of the treated water.

Organic Parameters

Atrazine

Atrazine was detected in the June and November treated water samples with a maximum value of 690 ng/L. Health and Welfare Canada has an Interim Maximum Acceptable Concentration (IMAC) for Atrazine in drinking water of 60,000 ng/L.

Trihalomethanes

Trihalomethanes(THMs) are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. All Total THM occurrences, ranging from 26.9 to 60.0 µg/L, were well below the ODWO of 350 µg/L.

CONCLUSIONS

The health related ODWO for turbidity was exceeded in the July sample. This can be attributed to a mechanical problem at the Water Treatment Plant.

The results listed in this report for 1989 are consistent with results reported for previous years.

The treated water was of good quality and this was maintained in the distribution system.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP SAMPLE DAY CONDITIONS FOR 1989

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)			
			COAGULATION	COAGULATION AID	TASTE & ODOUR	POST-CHLORINATION
			ALUM LIQUID	POLYELECTROLYTE	ACTIVATED CARBON POWDER	CHLORINE
DATE	DELAY TIME(HRS)	FLOW (1000M3)				
JAN 18	96.0	.	50.00	.50	2.80	2.00
FEB 22	48.0	.	50.00	.50	3.20	2.00
MAR 20	48.0	.	50.00	.50	2.80	.70
APR 17	48.0	.	60.00	.70	2.30	2.00
MAY 17	48.0	.	50.00	.50	2.80	2.00
JUN 21	48.0	.2	50.00	.50	4.20	2.00
JUL 19	48.6	.1	50.00	.50	3.70	2.00
AUG 23	48.0	.1	68.00	.50	3.00	2.00
SEP 20	.	.	50.00	.50	5.00	.
OCT 18	48.0	.2	50.00	.50	3.00	.70
NOV 22	3.5	.	1.20	.80	2.30	.
DEC 20	3.2	.	.50	.50	.30	.

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM HOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	12	4	0	.	.	.
	STANDRD PLATE CNT MF	.	.	.	12	2	0
	TOTAL COLIFORM MF	12	7	0	12	0	0
	T COLIFORM BCKGRD MF	12	11	0	12	1	0
*TOTAL SCAN BACTERIOLOGICAL		36	22	0	36	3	0
*TOTAL GROUP BACTERIOLOGICAL		36	22	0	36	3	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	12	11	0
	FLD CHLORINE FREE	.	.	.	12	12	0
	FLD CHLORINE (TOTAL)	.	.	.	12	12	0
	FLD PH	10	10	0	11	11	0
	FLD TEMPERATURE	10	10	0	12	12	0
	FLD TURBIDITY	10	10	0	12	12	0
*TOTAL SCAN CHEMISTRY (FLD)		30	30	0	71	70	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0
	CALCIUM	12	12	0	12	12	0
	CYANIDE	12	0	0	12	0	0
	CHLORIDE	12	12	0	12	12	0
	COLOUR	12	12	0	12	2	10
	CONDUCTIVITY	12	12	0	12	12	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	FLUORIDE	12	12	0	12	5	7
	HARDNESS	12	12	0	12	12	0
	IONCAL	12	12	0	12	12	0
	LANGELIERS INDEX	10	10	0	3	3	0
	MAGNESIUM	12	12	0	12	12	0
	SODIUM	12	12	0	12	12	0
	AMMONIUM TOTAL	12	10	0	12	3	6
	NITRITE	12	8	4	12	1	9
	TOTAL NITRATES	12	12	0	12	12	0
	NITROGEN TOT KJELD	12	12	0	12	12	0
	PH	12	12	0	12	12	0
	PHOSPHORUS FIL REACT	12	4	5	12	0	3
	PHOSPHORUS TOTAL	12	11	1	12	1	7
	SULPHATE	12	12	0	12	12	0
	TURBIDITY	12	12	0	12	12	0
*TOTAL SCAN CHEMISTRY (LAB)		250	223	10	243	171	42
METALS	SILVER	12	0	4	12	0	2
	ALUMINUM	12	12	0	12	12	0
	ARSENIC	12	7	5	12	3	7
	BARIUM	12	12	0	12	12	0
	BORON	12	12	0	12	12	0
	BERYLLIUM	12	0	10	12	0	6

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
METALS	CADMIUM	12	1	4	12	1	2
	COBALT	12	0	11	12	0	11
	CHROMIUM	12	11	1	12	8	2
	COPPER	12	12	0	12	12	0
	IRON	12	11	1	12	7	5
	MERCURY	12	0	2	12	0	2
	MANGANESE	12	12	0	12	12	0
	MOLYBDENUM	12	12	0	12	12	0
	NICKEL	12	1	9	12	1	8
	LEAD	12	12	0	12	12	0
	ANTIMONY	12	10	2	12	11	1
	SELENIUM	12	0	9	12	1	9
	STRONTIUM	12	12	0	12	12	0
	TITANIUM	12	12	0	12	12	0
	THALLIUM	12	0	5	12	0	3
	URANIUM	12	11	1	12	2	6
	VANADIUM	12	9	3	12	9	3
	ZINC	12	12	0	12	12	0
*TOTAL SCAN METALS		288	181	67	288	163	67
*TOTAL GROUP INORGANIC & PHYSICAL		568	434	77	602	404	109
CHLOROAROMATICS	HEXACHLOROBUTADIENE	12	0	0	11	0	0
	123 TRICHLOROBENZENE	12	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM HOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHLOROAROMATICS	1234 T-CHLOROBENZENE	12	0	0	11	0	0
	1235 T-CHLOROBENZENE	12	0	0	11	0	0
	124 TRICHLOROBENZENE	12	0	0	11	0	0
	1245 T-CHLOROBENZENE	12	0	0	11	0	0
	135 TRICHLOROBENZENE	12	0	0	11	0	0
	HCB	12	0	0	11	0	0
	HEXACHLOROETHANE	12	0	0	11	0	0
	OCTACHLOROSTYRENE	12	0	0	11	0	0
	PENTACHLOROBENZENE	12	0	0	11	0	0
	236 TRICHLOROTOLUENE	12	0	0	11	0	0
	245 TRICHLOROTOLUENE	12	0	0	11	0	0
	26A TRICHLOROTOLUENE	12	0	0	11	0	0
*TOTAL SCAN CHLOROAROMATICS		168	0	0	154	0	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	1	0	0	1	0	0
	2345 T-CHLOROPHENOL	1	0	0	1	0	0
	2356 T-CHLOROPHENOL	1	0	0	1	0	0
	245-TRICHLOROPHENOL	1	0	0	1	0	0
	246-TRICHLOROPHENOL	1	0	0	1	0	0
	PENTACHLOROPHENOL	1	0	0	1	0	0
*TOTAL SCAN CHLOROPHENOLS		6	0	0	6	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
PAH	PHENANTHRENE	12	0	0	12	0	0
	ANTHRACENE	12	0	0	12	0	0
	FLUORANTHENE	12	0	0	12	0	0
	PYRENE	12	0	0	12	0	0
	BENZO(A)ANTHRACENE	12	0	0	12	0	0
	CHRYSENE	12	0	0	12	0	0
	DIMETH. BENZ(A)ANTHR	5	0	0	6	0	0
	BENZO(E) PYRENE	12	0	0	12	0	0
	BENZO(B) FLUORANTHEN	12	0	0	12	0	0
	PERYLENE	12	0	0	12	0	0
	BENZO(K) FLUORANTHEN	12	0	0	12	0	0
	BENZO(A) PYRENE	6	0	0	6	0	0
	BENZO(G,H,I) PERYLEN	12	0	0	12	0	0
	DIBENZO(A,H) ANTHRAC	12	0	0	12	0	0
	INDENO(1,2,3-C,D) PY	12	0	0	12	0	0
	BENZO(B) CHRYSENE	12	0	0	12	0	0
	CORONENE	12	0	0	12	0	0
*TOTAL SCAN PAH		191	0	0	192	0	0
PESTICIDES & PCB	ALDRIN	12	0	0	11	0	0
	ALPHA BHC	12	0	4	11	0	0
	BETA BHC	12	0	0	11	0	0
	LINDANE	12	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	ALPHA CHLORDANE	12	0	0	11	0	0
	GAMMA CHLORDANE	12	0	0	11	0	0
	DIELDRIN	12	0	0	11	0	0
	METHOXYCHLOR	12	0	0	11	0	0
	ENDOSULFAN 1	12	0	0	11	0	0
	ENDOSULFAN II	12	0	0	11	0	0
	ENDRIN	12	0	0	11	0	0
	ENDOSULFAN SULPHATE	12	0	0	11	0	0
	HEPTACHLOR EPOXIDE	12	0	0	11	0	0
	HEPTACHLOR	12	0	0	11	0	0
	MIREX	12	0	0	11	0	0
	OXYCHLORDANE	12	0	0	11	0	0
	OPDDT	12	0	0	11	0	0
	PCB	12	0	0	11	0	0
	DDD	12	0	0	11	0	0
	PPDDE	12	0	0	11	0	0
	PPDDT	12	0	0	11	0	0
	AMETRINE	12	0	0	12	0	0
	ATRAZINE	12	2	1	12	2	1
	ATRATONE	12	0	0	12	0	0
	CYANAZINE (BLADEX)	12	0	0	12	0	0
	D-ETHYL ATRAZINE	12	0	1	12	0	1
	D-ETHYL SIMAZINE	12	0	0	12	0	0
	PROMETONE	12	0	0	12	0	0
	PROPAZINE	12	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
PESTICIDES & PCB	PROMETRYNE	12	0	0	12	0	0
	METRIBUZIN (SENCOR)	12	0	0	12	0	0
	SIMAZINE	12	0	0	12	0	0
	ALACHLOR (LASSO)	12	0	0	12	0	0
	METOLACHLOR	12	0	0	12	0	0
*TOTAL SCAN PESTICIDES & PCB		408	2	6	387	2	2
PHENOLICS	PHENOLICS	12	10	1	11	5	5
*TOTAL SCAN PHENOLICS		12	10	1	11	5	5
SPECIFIC PESTICIDES	TOXAPHENE	12	0	0	11	0	0
	2,4,5-T	1	0	0	1	0	0
	2,4-D	1	0	0	1	0	0
	2,4-DB	1	0	0	1	0	0
	2,4 D PROPIONIC ACID	1	0	0	1	0	0
	DICAMBA	1	0	0	1	0	0
	PICHLORAM	0	0	0	0	0	0
	SILVEX	1	0	0	1	0	0
	DIAZINON	2	0	0	2	0	0
	DICHLOROVOS	2	0	0	2	0	0
	CHLORPYRIFOS	2	0	0	2	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	ETHION	2	0	0	2	0	0
	AZINPHOS-METHYL	0	0	0	0	0	0
	MALATHION	2	0	0	2	0	0
	MEVINPHOS	2	0	0	2	0	0
	METHYL PARATHION	2	0	0	2	0	0
	METHYLTRITHION	2	0	0	2	0	0
	PARATHION	2	0	0	2	0	0
	PHORATE	2	0	0	2	0	0
	RELDAN	2	0	0	2	0	0
	RONNEL	2	0	0	2	0	0
	AMINOCARB	0	0	0	0	0	0
	BENOMYL	1	0	0	1	0	0
	BUX	0	0	0	0	0	0
	CARBOFURAN	2	0	0	2	0	0
	CICP	2	0	0	2	0	0
	DIALLATE	2	0	0	2	0	0
	EPTAN	2	0	0	2	0	0
	IPC	2	0	0	2	0	0
	PROPOXUR	2	0	0	2	0	0
	CARBARYL	2	0	0	2	0	0
	BUTYLATE	2	0	0	2	0	0
*TOTAL SCAN SPECIFIC PESTICIDES		59	0	0	58	0	0
VOLATILES	BENZENE	12	0	3	12	0	6

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	TOLUENE	12	0	2	12	0	7
	ETHYLBENZENE	12	0	1	12	0	3
	P-XYLENE	12	0	0	12	0	0
	M-XYLENE	12	0	0	12	0	1
	O-XYLENE	12	0	0	12	0	2
	STYRENE	12	0	4	12	0	1
	1,1 DICHLOROETHYLENE	12	0	0	12	0	0
	METHYLENE CHLORIDE	12	0	0	12	0	0
	T1,2DICHLOROETHYLENE	12	0	0	12	0	0
	1,1 DICHLOROETHANE	12	0	0	12	0	0
	CHLOROFORM	12	0	0	12	12	0
	111, TRICHLOROETHANE	12	0	1	12	0	1
	1,2 DICHLOROETHANE	12	0	0	12	0	0
	CARBON TETRACHLORIDE	12	0	0	12	0	0
	1,2 DICHLOROPROPANE	12	0	0	12	0	0
	TRICHLOROETHYLENE	12	0	0	12	0	0
	DICHLOROBROMOMETHANE	12	0	0	12	12	0
	112 TRICHLOROETHANE	12	0	0	12	0	0
	CHLORODIBROMOMETHANE	12	0	0	12	12	0
	T-CHLOROETHYLENE	12	0	0	12	0	2
	BROMOFORM	12	0	0	12	1	10
	1122 T-CHLOROETHANE	12	0	0	12	0	0
	CHLOROBENZENE	12	0	0	12	0	0
	1,4 DICHLOROBENZENE	12	0	0	12	0	0
	1,3 DICHLOROBENZENE	12	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM MOTCHELLS BAY

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	1,2 DICHLOROBENZENE	12	0	0	12	0	1
	ETHLYENE DIBROMIDE	12	0	0	12	0	0
	TOTL TRIHALOMETHANES	12	0	0	12	12	0
*TOTAL SCAN VOLATILES		348	0	11	348	49	34
*TOTAL GROUP ORGANIC		1192	12	18	1156	56	41
TOTAL		1796	468	95	1794	463	150

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours

2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
5. Maximum Contaminant Level Goal (MCLG)

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. Studies of long-term environmental trends and modelling may however, be adversely affected by the exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported with the code "<T". Results qualified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. The average of such data however, is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!IV	No Data: Inverted Septum
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded

!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM	
	RAW	TREATED		
BACTERIOLOGICAL				
FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 0 (A1)
JAN	5 T24	.		
FEB	0 T24	.		
MAR	6 T24	.		
APR	0 T24	.		
MAY	0	.		
JUN	0	.		
JUL	0	.		
AUG	0 A3C	.		
SEP	0	.		
OCT	5	.		
NOV	416	.		
DEC	BDL	.		
STANDRD PLATE CNT MF ( )			DET'N LIMIT =	GUIDELINE =
JAN	.	1 <=>		
FEB	.	1 <=>		
MAR	.	0 <=>		
APR	.	4 <=>		
MAY	.	3 <=>		
JUN	.	1 <=>		
JUL	.	0 <=>		
AUG	.	0 <=>		
SEP	.	800		
OCT	.	3 <=>		
NOV	.	3 <=>		
DEC	.	23		
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 5/100ML(A1)
JAN	10000 R48	0 T24		
FEB	10 <=>	0 T24		
MAR	144 A3C	0		
APR	44 A3C	0 T48		
MAY	170 A3C	0		
JUN	20 <=>	0		
JUL	BDL	0		
AUG	BDL	0		
SEP	80 A3C	0		
OCT	40 A3C	0		
NOV	55000 A3C	0		
DEC	40 <=>	0		
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = N/A
JAN	62000 R48	0 T24		
FEB	180 T24	0 T24		
MAR	4080 A3C	0		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

	WATER TREATMENT PLANT	
	RAW	TREATED
APR	7.600	7.000
MAY	7.600	7.000
JUN	8.000	7.800
JUL	9.200	4.700
AUG	8.700	7.000
SEP	.	6.600
OCT	7.500	6.800
NOV	7.500	6.300
DEC	.	7.100

FLD TEMPERATURE (DEG.C) DET'N LIMIT = N/A GUIDELINE = 15 (A1)

JAN	5.000	12.000
FEB	6.000	12.000
MAR	4.000	12.000
APR	8.000	14.000
MAY	10.000	15.000
JUN	19.000	20.000
JUL	23.000	24.000
AUG	21.000	23.000
SEP	.	20.000
OCT	15.000	17.000
NOV	8.000	11.000
DEC	.	9.000

FLD TURBIDITY (FTU) DET'N LIMIT = N/A GUIDELINE = 1.0 (A1)

JAN	20.000	.160
FEB	7.600	.130
MAR	15.000	.160
APR	20.000	.320
MAY	6.200	.200
JUN	3.100	.180
JUL	6.500	1.370
AUG	2.500	.160
SEP	.	.120
OCT	3.800	.210
NOV	92.000	.070
DEC	.	.180

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	
CHEMISTRY (FLD)			
FLD CHLORINE (COMB) ( )		DET'N LIMIT =	GUIDELINE =
JAN	.	.100	
FEB	.	.200	
MAR	.	.100	
APR	.	.200	
MAY	.	.200	
JUN	.	.100	
JUL	.	.200	
AUG	.	.100	
SEP	.	.000	
OCT	.	.300	
NOV	.	.300	
DEC	.	.400	
FLD CHLORINE FREE ( )		DET'N LIMIT =	GUIDELINE =
JAN	.	.400	
FEB	.	.400	
MAR	.	.400	
APR	.	.500	
MAY	.	.400	
JUN	.	.300	
JUL	.	.400	
AUG	.	.400	
SEP	.	.700	
OCT	.	.400	
NOV	.	.300	
DEC	.	.200	
FLD CHLORINE (TOTAL) ( )		DET'N LIMIT =	GUIDELINE =
JAN	.	.500	
FEB	.	.600	
MAR	.	.500	
APR	.	.700	
MAY	.	.600	
JUN	.	.400	
JUL	.	.600	
AUG	.	.500	
SEP	.	.700	
OCT	.	.700	
NOV	.	.600	
DEC	.	.600	
FLD PH (DIMENSLESS)		DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
JAN	7.500	.	
FEB	7.000	7.200	
MAR	7.600	7.000	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
APR	3200 A3C	0 T48
MAY	11000 A3C	0
JUN	5400 A3C	1
JUL	BDL	0
AUG	48000 >	0
SEP	34000 A3C	0
OCT	9200 A3C	0
NOV	00000 A3C	0
DEC	220	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM		
	RAW	TREATED		
CHEMISTRY (LAB)				
ALKALINITY (MG/L)			DET'N LIMIT = .200	GUIDELINE = 30-500 (A4)
JAN	115.700	74.400		
FEB	102.000	61.300		
MAR	96.800	46.600		
APR	125.300	82.100		
MAY	94.400	51.800		
JUN	104.600	55.600		
JUL	56.000	2.200		
AUG	64.300	35.800		
SEP	90.800	61.500		
OCT	105.300	65.400		
NOV	121.900	86.500		
DEC	136.400	107.800		
CALCIUM (MG/L)			DET'N LIMIT = .100	GUIDELINE = 100 (F2)
JAN	51.800	51.000		
FEB	38.600	41.000		
MAR	37.200	36.600		
APR	62.200	59.600		
MAY	35.000	34.400		
JUN	47.600	48.400		
JUL	17.400	19.600		
AUG	19.000	19.000		
SEP	29.400	29.600		
OCT	37.800	36.000		
NOV	60.800	54.400		
DEC	51.200	52.000		
CHLORIDE (MG/L)			DET'N LIMIT = .200	GUIDELINE = 250 (A3)
JAN	27.400	25.800		
FEB	16.000	17.900		
MAR	17.400	17.700		
APR	25.300	26.700		
MAY	12.100	14.100		
JUN	26.300	28.000		
JUL	17.300	19.500		
AUG	13.000	13.300		
SEP	9.900	12.500		
OCT	16.100	17.900		
NOV	38.300	32.700		
DEC	22.200	24.700		
COLOUR (HZU)			DET'N LIMIT = .5	GUIDELINE = 5.0 (A3)
JAN	6.500	1.500 <T		
FEB	4.000	2.000 <T		
MAR	3.000	2.000 <T		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED		
APR	11.500	1.500 <T		
MAY	2.500	.500 <T		
JUN	8.000	2.000 <T		
JUL	7.000	2.500		
AUG	7.500	1.000 <T		
SEP	7.000	1.000 <T		
OCT	5.000	1.500 <T		
NOV	37.500	3.000		
DEC	7.000	2.000 <T		
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1	GUIDELINE = 400 (F2)
JAN	411	411		
FEB	310	340		
MAR	301	310		
APR	467	490		
MAY	268	295		
JUN	401	416		
JUL	215	256		
AUG	196	204		
SEP	239	259		
OCT	296	316		
NOV	476	448		
DEC	404	423		
FLUORIDE (MG/L)			DET'N LIMIT = .01	GUIDELINE = 2.400 (A1)
JAN	.140	.040 <T		
FEB	.080	.040 <T		
MAR	.100	.020 <T		
APR	.100	.060		
MAY	.100	.040 <T		
JUN	.100	.060		
JUL	.120	.060		
AUG	.100	.080		
SEP	.080	.040 <T		
OCT	.120	.040 <T		
NOV	.140	.080		
DEC	.100	.040 <T		
HARDNESS (MG/L)			DET'N LIMIT = .500	GUIDELINE = 80-100 (A4)
JAN	179.000	176.000		
FEB	137.000	144.000		
MAR	128.000	126.000		
APR	212.000	205.000		
MAY	121.000	121.000		
JUN	177.000	179.000		
JUL	86.000	91.000		
AUG	83.000	82.000		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
SEP	108.000	110.000	
OCT	132.000	127.000	
NOV	211.000	186.000	
DEC	176.000	178.000	
IONCAL (DMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	2.482	3.495	
FEB	.312	1.198	
MAR	.212	.565	
APR	1.318	2.158	
MAY	1.452	3.428	
JUN	.356	.566	
JUL	2.052	3.235	
AUG	1.537	.655	
SEP	.118	2.195	
OCT	1.286	3.828	
NOV	1.635	1.461	
DEC	2.941	3.398	
LANGELIERS INDEX (DMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.365	-.473	
FEB	.333	-.455	
MAR	.457	-.520	
APR	.654	.530	
MAY	.432	-.186	
JUN	.376	-.363	
JUL	-.247	-4.417	
AUG	-.201	-.769	
SEP	.001	-.003	
OCT	.402	-.071	
NOV	.851	.367	
DEC	.883	.665	
MAGNESIUM (MG/L)		DET'N LIMIT = .050	GUIDELINE = 30 (F2)
JAN	12.000	11.700	
FEB	9.900	10.000	
MAR	8.600	8.500	
APR	13.800	13.800	
MAY	8.200	8.700	
JUN	14.000	14.100	
JUL	10.400	10.200	
AUG	8.600	8.400	
SEP	8.500	8.700	
OCT	9.200	9.000	
NOV	14.300	12.300	
DEC	11.700	11.700	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM	
	RAW	TREATED		
SODIUM (MG/L)			DET'N LIMIT = .200	GUIDELINE = 200 (C3)
JAN	12.400	11.000		
FEB	7.800	8.800		
MAR	8.600	9.000		
APR	10.200	10.000		
MAY	6.800	7.200		
JUN	9.400	9.600		
JUL	8.600	8.000		
AUG	6.800	6.800		
SEP	6.000	6.400		
OCT	9.100	9.000		
NOV	15.200	12.800		
DEC	11.600	11.400		
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002	GUIDELINE = .05 (F2)
JAN	.016	.012		
FEB	BDL	.024		
MAR	.014	BDL		
APR	.022	.010		
MAY	.016	.002 <T		
JUN	.028	.002 <T		
JUL	.016	.002 <T		
AUG	.012	.006 <T		
SEP	.032	.002 <T		
OCT	.014	.002 <T		
NOV	BDL	BDL		
DEC	.040	BDL		
NITRITE (MG/L)			DET'N LIMIT = 0.001	GUIDELINE = 1.000 (A1)
JAN	.021	.002 <T		
FEB	.005	BDL		
MAR	.011	BDL		
APR	.038	.002 <T		
MAY	.005	.005		
JUN	.058	.001 <T		
JUL	.004 <T	.003 <T		
AUG	.003 <T	.004 <T		
SEP	.003 <T	.001 <T		
OCT	.004 <T	.003 <T		
NOV	.113	.001 <T		
DEC	.021	.001 <T		
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020	GUIDELINE = 10.000 (A1)
JAN	3.200	2.770		
FEB	1.430	1.570		
MAR	.680	.610		
APR	5.900	5.700		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
MAY	.565	.640
JUN	4.350	4.130
JUL	.270	.310
AUG	.035	.035
SEP	.025	.050
OCT	.200	.195
NOV	3.320	3.430
DEC	1.620	1.760

NITROGEN TOT KJELD (MG/L) DET'N LIMIT = .020 GUIDELINE = N/A

JAN	.480	.220
FEB	.290	.130
MAR	.340	.100
APR	.620	.270
MAY	.250	.110
JUN	.620	.330
JUL	.400	.180
AUG	.390	.190
SEP	.310	.180
OCT	.310	.190
NOV	1.380	.380
DEC	.410	.230

PH (DIMNSLESS) DET'N LIMIT = N/A GUIDELINE = 6.5-8.5(A4)

JAN	8.040	7.400
FEB	8.180	7.590
MAR	8.340	7.690
APR	8.220	8.300
MAY	8.340	8.000
JUN	8.130	7.660
JUL	8.170	5.370
AUG	8.110	7.800
SEP	7.990	8.160
OCT	8.240	8.000
NOV	8.440	8.150
DEC	8.490	8.370

PHOSPHORUS FIL REACT (MG/L) DET'N LIMIT = .0005 GUIDELINE = N/A

JAN	.008	.001 <T
FEB	.001 <T	BDL
MAR	.007	BDL
APR	.004	.001 <T
MAY	.001 <T	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	.001 <T	BDL
SEP	.001 <T	.000 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = .002	GUIDELINE = .40 (F2)
OCT	BDL	BDL	
NOV	.051	BDL	
DEC	.001 <T	BDL	
JAN	.028	.002 <T	
FEB	.008 <T	BDL	
MAR	.027	.002 <T	
APR	.030	BDL	
MAY	.013	BDL	
JUN	.023	.010	
JUL	.015	BDL	
AUG	.018	.003 <T	
SEP	.012	.005 <T	
OCT	.010	.003 <T	
NOV	.178	.002 <T	
DEC	.010	.002 <T	
SULPHATE (MG/L)		DET'N LIMIT = .200	GUIDELINE = 500. (A3)
JAN	43.250	82.320	
FEB	23.850	69.640	
MAR	21.950	68.510	
APR	47.230	88.410	
MAY	19.650	65.340	
JUN	38.820	85.230	
JUL	20.620	77.990	
AUG	15.710	39.830	
SEP	16.150	45.110	
OCT	20.520	58.310	
NOV	49.830	69.590	
DEC	32.320	58.230	
TURBIDITY (FTU)		DET'N LIMIT = .02	GUIDELINE = 1.00 (A1)
JAN	23.000	.750	
FEB	2.900	.570	
MAR	15.000	.490	
APR	21.000	.550	
MAY	5.100	.770	
JUN	2.500	.800	
JUL	1.630	1.970	
AUG	2.200	.410	
SEP	.760	.350	
OCT	3.400	.570	
NOV	168.000	.720	
DEC	3.600	.260	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
METALS		
SILVER (UG/L)		DET'N LIMIT = .020 GUIDELINE = 50. (A1)
JAN	BDL	BDL
FEB	.060 <T	BDL
MAR	.030 <T	BDL
APR	BDL	.060 <T
MAY	.200 <T	.090 <T
JUN	.030 <T	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL
ALUMINUM (UG/L)		DET'N LIMIT = .050 GUIDELINE = 100.(A4)
JAN	777.200	13.920
FEB	116.000	12.760
MAR	603.200	12.760
APR	464.000	15.080
MAY	185.600	19.720
JUN	150.000	17.000
JUL	148.890	466.200
AUG	96.000	33.000
SEP	210.000	23.000
OCT	120.000	110.000
NOV	790.000 RRV	74.000
DEC	130.000	27.000
ARSENIC (UG/L)		DET'N LIMIT = 0.050 GUIDELINE = 50.0 (A1)
JAN	.420 <T	BDL
FEB	1.400	1.300
MAR	1.500	.570 <T
APR	.790 <T	.500 <T
MAY	1.400	.860 <T
JUN	1.400	1.100
JUL	1.270	.590 <T
AUG	1.900	1.400
SEP	.880 <T	.430 <T
OCT	.680 <T	.320 <T
NOV	1.100	.430 <T
DEC	.800 <T	BDL
BARIUM (UG/L)		DET'N LIMIT = 0.020 GUIDELINE = 1000. (A1)
JAN	24.000	21.000
FEB	17.000	18.000
MAR	20.000	17.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM
	RAW	TREATED	
BORON (UG/L)			DET'N LIMIT = 0.200 GUIDELINE = 5000. (A1)
JAN	50.000	44.000	
FEB	63.000	58.000	
MAR	72.000	120.000	
APR	200.000	120.000	
MAY	43.000	40.000	
JUN	46.000	48.000	
JUL	37.040	37.230	
AUG	34.000	32.000	
SEP	25.000	21.000	
OCT	31.000	23.000	
NOV	55.000	42.000	
DEC	25.000	27.000	
BERYLLIUM (UG/L)			DET'N LIMIT = 0.010 GUIDELINE = N/A
JAN	.160 <T	.100 <T	
FEB	.170 <T	.120 <T	
MAR	.100 <T	BDL	
APR	.160 <T	.260 <T	
MAY	.170 <T	.080 <T	
JUN	.060 <T	BDL	
JUL	.020 <T	.020 <T	
AUG	.080 <T	.030 <T	
SEP	BDL	BDL	
OCT	.040 <T	BDL	
NOV	.150 <T	BDL	
DEC	BDL	BDL	
CADMIUM (UG/L)			DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)
JAN	BDL	BDL	
FEB	.060 <T	BDL	
MAR	BDL	BDL	
APR	.110 <T	.150 <T	
MAY	.160 <T	.110 <T	
JUN	.090 <T	BDL	
JUL	BDL	BDL	
AUG	BDL	BDL	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT — DISTRIBUTION SYSTEM

	RAW	TREATED
COBALT (UG/L)		DET'N LIMIT = 0.020 GUIDELINE = N/A
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	2.400	.900
COBALT (UG/L)		DET'N LIMIT = 0.020 GUIDELINE = N/A
JAN	.320 <T	.230 <T
FEB	.280 <T	.290 <T
MAR	.250 <T	.070 <T
APR	.120 <T	.120 <T
MAY	.490 <T	.450 <T
JUN	.130 <T	.280 <T
JUL	.230 <T	.260 <T
AUG	.210 <T	.120 <T
SEP	BDL	BDL
OCT	.140 <T	.150 <T
NOV	.490 <T	.200 <T
DEC	.110 <T	.080 <T
CHROMIUM (UG/L)		DET'N LIMIT = 0.100 GUIDELINE = 50. (A1)
JAN	6.700	4.700
FEB	5.500	4.100
MAR	7.200	3.500
APR	7.800	6.300
MAY	8.200	5.600
JUN	3.400	2.900
JUL	2.500	1.810
AUG	2.100	1.700
SEP	2.500	.630 <T
OCT	3.900	.660 <T
NOV	3.900	BDL
DEC	.910 <T	BDL
COPPER (UG/L)		DET'N LIMIT = .100 GUIDELINE = 1000 (A3)
JAN	11.000	16.000
FEB	2.200	20.000
MAR	2.100	25.000
APR	2.500	14.000
MAY	1.500	20.000
JUN	2.300	20.000
JUL	2.430	73.150
AUG	1.300	16.000
SEP	1.300	25.000
OCT	1.900	16.000
NOV	3.800	18.000
DEC	200.000	120.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
URANIUM (UG/L)			DET'N LIMIT = .020 GUIDELINE = 100.(B1)
JAN	.040 <T	BDL	
FEB	BDL	BDL	
MAR	.090 <T	.030 <T	
APR	.120 <T	.020 <T	
MAY	BDL	BDL	
JUN	BDL	.040 <T	
JUL	BDL	BDL	
AUG	.120 <T	BDL	
SEP	.020 <T	BDL	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	
URANIUM (UG/L)			DET'N LIMIT = .020 GUIDELINE = 100.(B1)
JAN	.830	.030 <T	
FEB	.950	.100 <T	
MAR	.680	BDL	
APR	1.200	.220	
MAY	.530	BDL	
JUN	1.400	.050 <T	
JUL	.820	.580	
AUG	.550	BDL	
SEP	.140 <T	BDL	
OCT	.350	.030 <T	
NOV	1.300	.160 <T	
DEC	.680	.150 <T	
VANADIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A
JAN	.930	.470 <T	
FEB	.480 <T	.450 <T	
MAR	1.300	.220 <T	
APR	1.000	.640	
MAY	.750	.840	
JUN	.680	.650	
JUL	1.360	.560	
AUG	1.400	.730	
SEP	.470 <T	.540	
OCT	.500 <T	.560	
NOV	1.800	.730	
DEC	.640	.520	
ZINC (UG/L)			DET'N LIMIT = .001 GUIDELINE = 5000. (A3)
JAN	17.000	12.000	
FEB	9.900	11.000	
MAR	12.000	12.000	
APR	9.800	16.000	
MAY	5.500	11.000	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
JUN	6.000	7.800
JUL	2.730	11.110
AUG	2.300	2.900
SEP	6.000	5.800
OCT	2.600	4.500
NOV	9.600	4.900
DEC	88.000	38.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
RAW	TREATED	

IRON (UG/L) — DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)

JAN	150.000	98.000
FEB	65.000	100.000
MAR	310.000	97.000
APR	240.000	47.000 <T
MAY	130.000	120.000
JUN	52.000	79.000
JUL	64.910	211.700
AUG	81.000	39.000 <T
SEP	41.000 <T	37.000 <T
OCT	81.000	53.000
NOV	690.000 RRV	50.000 <T
DEC	150.000	39.000 <T

MERCURY (UG/L) — DET'N LIMIT = 0.010 GUIDELINE = 1.000 (A1)

JAN	.040 <T	.050 <T
FEB	.040 <T	.040 <T
MAR	BDL	BDL
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL

MANGANESE (UG/L) — DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)

JAN	5.400	5.300
FEB	2.500	4.500
MAR	7.900	5.400
APR	6.800	7.000
MAY	6.200	7.200
JUN	5.900	6.900
JUL	5.030	9.630
AUG	5.900	4.300
SEP	5.200	5.400
OCT	6.900	5.100
NOV	24.000	6.600
DEC	4.900	5.300

MOLYBDENUM (UG/L) — DET'N LIMIT = 0.020 GUIDELINE = N/A

JAN	.910	.900
FEB	1.200	.990
MAR	1.000	.560
APR	1.300	1.700

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
MAY	1.200	1.200
JUN	2.500	2.000
JUL	1.470	.780
AUG	1.100	1.100
SEP	.670	.680
OCT	.820	.760
NOV	.610	1.700
DEC	1.100	1.100
NICKEL (UG/L)		DET'N LIMIT = 0.100 GUIDELINE = 50. (F3)
JAN	.920 <T	.800 <T
FEB	1.300 <T	2.000 <T
MAR	1.400 <T	BDL
APR	.470 <T	.620 <T
MAY	2.500	2.400
JUN	1.400 <T	1.600 <T
JUL	.650 <T	.450 <T
AUG	.590 <T	.740 <T
SEP	BDL	BDL
OCT	.460 <T	.480 <T
NOV	1.500 <T	1.600 <T
DEC	BDL	BDL
LEAD (UG/L)		DET'N LIMIT = 0.050 GUIDELINE = 50. (A1)
JAN	.510	.440
FEB	.570	1.600
MAR	.990	.980
APR	1.000	.820
MAY	.830	1.200
JUN	.620	1.100
JUL	.960	5.130
AUG	.520	.800
SEP	.240	1.300
OCT	.460	.750
NOV	2.500	.620
DEC	6.000	9.900
ANTIMONY (UG/L)		DET'N LIMIT = .050 GUIDELINE = 146. (D4)
JAN	.300	.480
FEB	.810	.930
MAR	.660	.590
APR	.440	.590
MAY	.920	.930
JUN	.980	.740
JUL	.990	.860
AUG	.690	.700
SEP	.510	.510

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
SELENIUM (UG/L)			DET'N LIMIT = 0.200 GUIDELINE = 10. (A1)
JAN	2.000 <T	4.200 <T	
FEB	2.300 <T	5.200 <T	
MAR	BDL	5.400 <T	
APR	2.700 <T	5.500 <T	
MAY	1.500 <T	8.500 <T	
JUN	4.100 <T	6.400	
JUL	1.340 <T	4.450 <T	
AUG	1.300 <T	3.600 <T	
SEP	BDL	1.100 <T	
OCT	BDL	BDL	
NOV	2.100 <T	1.400 <T	
DEC	2.000 <T	BDL	
STRONTIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A
JAN	150.000	150.000	
FEB	130.000	130.000	
MAR	120.000	120.000	
APR	180.000	210.000	
MAY	110.000	110.000	
JUN	180.000	210.000	
JUL	112.110	118.940	
AUG	100.000	100.000	
SEP	120.000	120.000	
OCT	140.000	140.000	
NOV	190.000	190.000	
DEC	190.000	200.000	
TITANIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A
JAN	6.300	3.000	
FEB	7.900	6.600	
MAR	27.000	9.500	
APR	15.000	6.500	
MAY	7.800	5.300	
JUN	7.300	8.200	
JUL	8.120	7.000	
AUG	8.200	5.000	
SEP	4.700	4.400	
OCT	4.900	3.600	
NOV	9.200	6.500	
DEC	6.800	6.000	
THALLIUM (UG/L)			DET'N LIMIT = .010 GUIDELINE = 13. (D4)

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT — DISTRIBUTION SYSTEM

PHENOLICS (UG/L)

DET'N LIMIT = 0.2 — GUIDELINE = 2.00 (A3)

	RAW	TREATED
JAN	2.000	IPR
FEB	1.800	1.000
MAR	2.000	.600 <T
APR	1.800	1.200
MAY	1.600	.600 <T
JUN	.800 <T	.600 <T
JUL	3.000	.800 <T
AUG	8.600	1.800
SEP	2.000	3.800
OCT	1.200	1.000 <T
NOV	1.800	5.400
DEC	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED		
PESTICIDES & PCB				
ALPHA BHC (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 700 (G)
JAN	2.000 <T	BDL		
FEB	BDL	BDL		
MAR	1.000 <T			
APR	BDL	BDL		
MAY	1.000 <T	BDL		
JUN	BDL	BDL		
JUL	BDL	BDL		
AUG	BDL	BDL		
SEP	BDL	BDL		
OCT	BDL	BDL		
NOV	1.000 <T	BDL		
DEC	BDL	BDL		
ATRAZINE (NG/L)			DET'N LIMIT = 50.00	GUIDELINE = 60000 (B3)
JAN	BDL	BDL		
FEB	BDL	BDL		
MAR	BDL	BDL		
APR	420.000 <T	BDL		
MAY	BDL	BDL		
JUN	BDL	650.000		
JUL	530.000	300.000 <T		
AUG	BDL	BDL		
SEP	BDL	BDL		
OCT	BDL	BDL		
NOV	1120.000	690.000		
DEC	BDL	BDL		
D-ETHYL ATRAZINE (NG/L)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	BDL	BDL		
FEB	BDL	BDL		
MAR	BDL	BDL		
APR	BDL	BDL		
MAY	BDL	BDL		
JUN	BDL	BDL		
JUL	590.000 <T	480.000 <T		
AUG	BDL	BDL		
SEP	BDL	BDL		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	BDL		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT — DISTRIBUTION SYSTEM

	RAW	TREATED
VOLATILES		
BENZENE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 5.0 (B1)
JAN	.100 <T	.050 <T
FEB	.200 <T	.100 <T
MAR	BDL	BDL
APR	BDL	.050 <T
MAY	BDL	BDL
JUN	BDL	BDL
JUL	.050 <T	.150 <T
AUG	BDL	.050 <T
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	.050 <T
TOLUENE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 24.0 (B4)
JAN	BDL	BDL
FEB	.100 <T	BDL
MAR	BDL	.100 <T
APR	BDL	.100 <T
MAY	BDL	BDL
JUN	BDL	.100 <T
JUL	.150 <T	.350 <T
AUG	BDL	.100 <T
SEP	BDL	.100 <T
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	.050 <T
ETHYLBENZENE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 2.4 (B4)
JAN	BDL	BDL
FEB	.050 <T	BDL
MAR	BDL	.050 <T
APR	BDL	.050 <T
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	.100 <T
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL
M-XYLENE (UG/L)		DET'N LIMIT = .100 GUIDELINE = 300 (B4)
JAN	BDL	BDL
FEB	BDL	BDL
MAR	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
O-XYLENE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 300 (B4)
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	.100 <T
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL
STYRENE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 46.5 (D2)
JAN	BDL	BDL
FEB	BDL	BDL
MAR	BDL	BDL
APR	BDL	.050 <T
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	.150 <T
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL
CHLOROFORM (UG/L)		DET'N LIMIT = .100 GUIDELINE = 350 (A1+)
JAN	.250 <T	BDL
FEB	.350 <T	BDL
MAR	.100 <T	BDL
APR	.200 <T	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	.050 <T
JAN	BDL	14.700
FEB	BDL	9.600
MAR	BDL	10.300
APR	BDL	25.400
MAY	BDL	11.000
JUN	BDL	24.000
JUL	BDL	14.200
AUG	BDL	26.400

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
SEP	BDL	35.100
OCT	BDL	14.600
NOV	BDL	27.400
DEC	BDL	23.400
111, TRICHLOROETHANE (UG/L)		DET'N LIMIT = .020 GUIDELINE = 200 (D1)
JAN	BDL	BDL
FEB	BDL	BDL
MAR	.060 <T	.020 <T
APR	BDL	BDL
MAY	BDL	BDL
JUN	BDL	BDL
JUL	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL
DICHLOROBROMOMETHANE (UG/L)		DET'N LIMIT = .050 GUIDELINE = 350 (A1+)
JAN	BDL	14.700
FEB	BDL	9.500
MAR	BDL	10.750
APR	BDL	17.100
MAY	BDL	9.950
JUN	BDL	16.700
JUL	BDL	8.850
AUG	BDL	12.200
SEP	BDL	10.800
OCT	BDL	13.200
NOV	BDL	21.550
DEC	BDL	18.850
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = .100 GUIDELINE = 350 (A1+)
JAN	BDL	9.000
FEB	BDL	7.100
MAR	BDL	8.500
APR	BDL	7.900
MAY	BDL	7.900
JUN	BDL	8.000
JUL	BDL	3.500
AUG	BDL	3.600
SEP	BDL	2.200
OCT	BDL	8.600
NOV	BDL	10.100
DEC	BDL	7.600

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED	
T-CHLOROETHYLENE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 10.0 (C2)
JAN	BDL	BDL	
FEB	BDL	BDL	
MAR	BDL	BDL	
APR	BDL	.100 <T	
MAY	BDL	BDL	
JUN	BDL	BDL	
JUL	BDL	BDL	
AUG	BDL	BDL	
SEP	BDL	.050 <T	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	
BROMOFORM (UG/L)			DET'N LIMIT = .200 GUIDELINE = 350 (A1+)
JAN	BDL	1.200 <T	
FEB	BDL	1.200 <T	
MAR	BDL	2.000	
APR	BDL	.600 <T	
MAY	BDL	1.400 <T	
JUN	BDL	.600 <T	
JUL	BDL	.400 <T	
AUG	BDL	.200 <T	
SEP	BDL	BDL	
OCT	BDL	1.200 <T	
NOV	BDL	1.000 <T	
DEC	BDL	.800 <T	
1,2 DICHLOROBENZENE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 200 (B1)
JAN	BDL	BDL	
FEB	BDL	BDL	
MAR	BDL	BDL	
APR	BDL	.100 <T	
MAY	BDL	BDL	
JUN	BDL	BDL	
JUL	BDL	BDL	
AUG	BDL	BDL	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	BDL	BDL	
DEC	BDL	BDL	
TOTL TRIHALOMETHANES (UG/L)			DET'N LIMIT = .500 GUIDELINE = 350 (A1)
JAN	BDL	39.600	
FEB	BDL	27.400	
MAR	BDL	31.550	
APR	BDL	51.000	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM MITCHELLS BAY WTP 1989

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW	TREATED
MAY	BDL	30.250
JUN	BDL	49.300
JUL	BDL	26.950
AUG	BDL	42.400
SEP	BDL	48.100
OCT	BDL	37.600
NOV	BDL	60.050
DEC	BDL	50.350

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	2000. (B4)
PENTACHLOROPHENOL	NG/L	50.	30000. (B4)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	NG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	NG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	NG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	^{o}C	N/A	<15 ^{o}C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	NG/L	.200	30-500(A4)
CALCIUM	NG/L	.100	100. (F2)
CYANIDE	NG/L	.001	.20(A1)
CHLORIDE	NG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	NG/L	.01	2.4 (A1)
HARDNESS	NG/L	.50	80-100(A4)
MAGNESIUM	NG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(P2)
SULPHATE	MG/L	.200	500. (A3)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	10. (P3)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (P3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
PESTICIDES & PCB			
ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	900000. (B1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR EPOXIDE	NG/L	1.0	3000.	(A1)
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	200000.	(B4)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	120000.	(B1)
PICLORAM	NG/L	100.	190000.	(B3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	20000.	(B1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION(AZINPHOSMETHYL)	NG/L	N/A	20000.	(B1)
MALATHION	NG/L	20.	190000.	(B1)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(A1)
METHYLTRITHION	NG/L	20.	N/A	

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
PARATHION	NG/L	20.	50000. (B1)
PHORATE (THIMET)	NG/L	20.	2000. (B3)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENOMYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	90000. (B1)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	90000. (B1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)
VOLATILES			
BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHLYENE DIBROMIDE	UG/L	.05	.05 G)
METHYLENE CHLORIDE	UG/L	.500	50. (B1)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	70. (D5)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (B1)
1,2-DICHLOROPROPANE	UG/L	.050	6.0 (D5)
TRICHLOROETHYLENE	UG/L	.100	50. (B1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	60. (D5)
1,4-DICHLOROBENZENE	UG/L	.100	1.0 (B4)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	3.0 (B4)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	140. (D5)